Annual Report WGSN 2024

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- https://www.iau.org/science/scientific_bodies/working_groups/280/
- https://exopla.net/star-names/modern-iau-star-names/

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1. Summary of Terms of Reference

The IAU Division C Working Group on Star Names (WGSN) consists of an international group of astronomers with expertise in various fields of astronomy who research and catalog proper names for stars for the use by the international astronomical community and also to aid the recognition and preservation of intangible astronomical heritage.[1] WGSN maintains the IAU-Catalog of Star Names (CSN).

The focus during the 2024-2027 triennium will be: (1) **to adopt new proper names for stars** to be added to the IAU-CSN. These names have to be well documented and follow the WGSN guidelines. In case of multiple suggestions for the same star, the (non-standardized) alternatives have to be equally well documented and their heritage preserved. For this purpose, we will (2a) continue an exhaustive search of star names from the cultural astronomy literature, and (2b) document all our findings in form of text, images, maps, reference etc. in the newly established **All Skies Encyclopaedia** (ASE) that was established in 2024 to host the data we had collected in GoogleSheets and other repositories. It needs professional technical development in collaboration with the IAU-Administration and other offices (OAO, OAD). (3) In exchange, we provide our expertise to support other IAU efforts related to celestial nomenclature and outreach.

Anticipated outputs of the WGSN are **(1)** the maintenance of the **IAU Catalog of Star Names** and other IAU content on celestial nomenclature, and **(2)** the documentation of

[1] https://www.iau.org/science/scientific_bodies/working_groups/280/.

etymological and other cultural information, which helps preserve the intangible astronomical heritage of both adopted and non-adopted names of stars and asterisms in the ASE and also provides a public explanation of rejections.

We follow **WGSN guidelines** for the adoption of names that have been proposed from the research of our group members. As we move forward, we will continuously revisit the guidelines to ensure they remain fit for purpose.

This annual report covers activities during 2024.

2. Business Matters

During 2024:

1. We welcomed back our former member **Xiaochun Sun**. Following the IAU GA in Cape Town, we welcomed the new members **Daniel Cunnama**, expert in South African culture and astronomy, and three experts in Arabic cultural astronomy: **Jörg Matthias Determann**, **Khalid Al-Ajaji** and **Roland Laffitte**. **Beatriz Garcia** left the group.
2. We created a new subgroup “Arabic names” comprising the three new members led by our long-standing member Danielle Adams.
3. **Eric Mamajek** resigned from the office of the “Secretary” but offered to stay in the group in a consultative capacity and to participate as much as time allows.

3. Update on WGSN Activities

- On 28 May, Eric Mamajek gave a talk (online) on the establishment of WGSN at the Meeting of the IHO-IOC Subcommittee on Undersea Feature Names. They had requested this meeting for an exchange on naming practices.

Work on naming stars

1. The WGSN held its **business meeting in January**. Owing to the rich information collected during preparatory work in 2023 (i.e. creating a catalog of all stars brighter than 6.5 mag with 8547 entries, a list of name suggestions by the members of our group from their studies in history or indigenous cultures, and a list of 36 main stars of IAU-constellations that are still not officially named), it was decided to have **monthly discussions** to exchange about the naming strategies. These commenced in May.
2. In these meetings our starting point was the **“Axis of Merits”** drafted **by Eric Mamajek.** The general idea works very well, although we preferred to reach consensus through individual discussions between members rather than by using a scoring system that we will use similar to guidelines.
3. We instigated an **encyclopaedia project** in order to bring together all the information on name suggestions in order to gain more detailed insights and reach sound decisions. In the encyclopedia, historical information will be stored both for adopted and rejected names. It is currently hosted (preliminarily) by the Faculty of

Mathematics and Computer Science of the University of Jena (Germany) on a virtual machine (http://all-skies-encyclopaedia.exopla.net)

4. We continued the collection of name suggestions, focusing particularly upon Chinese, Northern Dene (Alaska and Northern Canada) and Arabic names. Having added ~800 new names, by the end of the year **our suggestion catalog contained approximately 1450 names.** Where we have multiple suggested names for the same star we aim to achieve an optimal cultural balance when we eventually decide upon the standardized name.
5. By the end of 2024, we had **completed our website of etymology notes** for the currently 491 stars in the IAU-Catalog of Star Names, both on https://exopla.net. This list is continuously being updated, but the Etymology Task Group to collate the information for the names being given before 2020 is resolved. Its chair, Mrs. Doris Vickers, remains an Associate member of WGSN as "Counsellor for Etymologies".
6. By the end of 2024, we had submitted a group paper to the *Journal of Astronomical History and Heritage* (JAHH) in order to document the scientific aspects of our work, e.g. etymological and linguistic studies. This annual report, thus, refrains from repeating the scientific outcome. Future reports will continue this strategy.

Current Naming "Strategy"

We have been observing a number of principles that are agreed by all group members:

1. **In the case of existing names with no alternative that are in common use,** we normally **standardize** that name, e.g. "Garnet Star".
2. Where possible, we avoid similarities with existing names—e.g., we chose to name a star in Aqr "Safina" for *al-Safina*, the Ship (an indigenous Arabian constellation) because the term "Alsephina" was already used for a star in Argo (Arabic translation from Greek). However, with good reason we do allow variants of the same name, as has been done for centuries—e.g. the name "Xami" was applied to α Cir in 2024 following a contemporary South African identification of stars in the Cen/Cir-area, although on the basis of a 19th-century source the WGSN had already applied the name "Xamidimura" to the star μ1 Sco.
3. We **refrain from using an existing cultural name where it** is associated with a star (or, more generally, an asterism) that is named already (as in the case of "Hikoboshi" for Altair, "Orihime" for Vega, "Lilii Austrina" for Bharani). Similarly, we **avoid using names where there already exists a celestial body** with the same name (e.g. the asteroids "Noctua", "Dodo"), or which are not from the original culture but are translations of adopted names (e.g. the term "Nanche", occasionally mentioned in the literature as a Chinese asterism but actually a Chinese designation for the Greek Argo).
4. In choosing/approving a spelling we strive not to cause cultural or political offence.
5. We accept that the **original pronunciation in the language of origin may be** distorted or **lost** when the name is used by astrophysicists (e.g., "Altair", "Bake-eo", and "Uridim").
6. In general, we prefer to use older versions of asterism identifications (e.g. the pre-Tang Dynasty identification for Tengshe, which changed later) so as to preserve the earlier heritage. Otherwise, we **keep historical & indigenous names at their original place in the sky** (e.g., in 2024: Tianfu, Phyllon Kissnou, Yunü, Shaomin, Bake-eo, Zhou, Pipit, Leepwal, Garnet Star, Alsafina, Tengshe).

7. In order to **highlight a wider selection of cultural names** for asterisms (and thereby to better preserve intangible heritage), we consider applying the asterism name to a prominent (as yet unnamed) star in the area of the asterism (e.g. “Antinous”, “Solitaire”).
8. Where the **main star of an IAU constellation** is otherwise unnamed, we may adopt the convention of using the original name of the constellation, in the original language (e.g. “Rhombus” for α Ret, “Lang-Exster” for α Tuc, “Uridim” for α Lup, “Stellio” for α Lac).

Names discussed but not adopted are preserved and well documented in the publicly available All Skies Encyclopaedia (ASE) to be launched in mid-2025.

4. Further Problems & Tasks

4.1 General Caution with indigenous names

1. In some cases, the **spelling according to the IAU-Style Manual** (which omits diacritics) may change the meaning of the term or even render it meaningless. We explain each case in our documentation (etymology page and encyclopaedia), having made every effort to choose spellings that, when the diacritics are removed, will still convey the intended meaning.
2. While the WGSN uses published literature to compile its encyclopedia, we are aware that we may nonetheless need to seek permission for standardizing indigenous terms for global use.

The WGSN is aware that indigenous communities may not grant us the right to use their cultural heritage. As an example, some names that may only be pronounced by men (but only women): these clearly must not be used in the ASE or CSN because then they will be pronounced by everybody. On the one hand, t**he WGSN offers** indigenous communities the opportunity to share their celestial names publicly in the ASE. On the other, the IAU has neither the contacts, nor the capacity and resources, to ensure that permission is sought for any indigenous name before it is brought forward for consideration by the WGSN. We need to find ways to delegate this task to others.

All data storage by the IAU and WGSN respects with the FAIR[2] and CARE[3] principles.

4.2 Details

An instance where we have many competing suggestions is α **Lyn,** which could be assigned the Arabic name Al-Ziba, the European term Jordanus, or one of several names for Northern Dene asterisms covering the area.

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[2] **Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. (2016).** The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3, 160018.

[3] **Carroll, S.R., Garba, I., Figueroa-Rodríguez, O.L., Holbrook, J., Lovett, R., Materechera, S., Parsons, M., Raseroka, K., Rodriguez-Lonebear, D., Rowe, R., Sara, R., Walker, J.D., Anderson, J. and Hudson, M. (2020).** ‘The CARE Principles for indigenous Data Governance’, Data Science Journal, 19(1), p. 43.

The **main star of the constellation Dorado (**α Dor) remained unnamed as we didn't find consensus on any of the four or five suggestions.

"Hydor" is an ancient Greek constellation which is why the term was suggested to name a star in the area. Unfortunately, Bayer (1603) had mentioned the term in his star catalogue which was read as potential star name (one among several alternatives) for a specific star, but due to our guidelines this star has to be named with an older Indian name. We keep discussing this case.

In 2025, we will continue our monthly meetings to discuss star names case by case.

5. Publications

In 2023, the list of ~20 new star names from the 2022 NEWC were published.

By the end of 2024, the WGSN published an IAU **Press Release** at the IAU-OAO announcing the 19 new star names of the year. This was accompanied by a 15-day campaign of daily short messages containing etymology notes for each of the newly released star names.

A paper-like report that contains our scientific results for the years 2020 to 2024 was submitted to JAHH. The paper is due to be published by March 2025, simultaneously with this report. In the future, we aim to continue a similar procedure of publishing scientific results in journals and limit these annual reports to business matters.

List of newly adopted star names in the IAU-CSN

	Name	***HR***	***HIP***	***Constellation ID***	***Date approved***
1	Antinous	7710	99473	θ Aql	06/06/2024 *
2	Bake-eo	6629	87108	γ Oph	20/08/2024
3	Garnet Star	8316	107259	μ Cep	19/09/2024
4	Hoerikwaggo	2261	29271	α Men	12/12/2024
5	Lang-Exster	8502	110130	α Tuc	19/09/2024 *
6	Leepwal	5231	68002	ζ Cen	18/07/2024 *
7	Phyllon Kissinou	4789	61394	23 Com	16/05/2024 *
8	Pipit	2451	31685	ν Pup	25/08/2024
9	Rhombus	1336	19780	α Ret	19/09/2024 *
10	Safina	8812	114341	88 Aqr	12/12/2024
11	Shaomin	4413	51624	ρ Leo	18/07/2024
12	Solitaire	5526	72571	58 Hya	31/10/2024
13	Stellio	8585	111169	α Lac	29/08/2024
14	Tengshe	8726	113288	V424 Lac	19/09/2024

15	Tianfu	7669	98823	τ Aql	16/05/2024
16	Uridim	5469	71860	α Lup	12/09/2024
17	Xami	5463	71908	α Cir	12/12/2024
18	Yunü (Yunu)	3980	49637	31 Leo	18/07/2024
19	Zhou	5867	77233	β Ser	05/12/2024

* Known multiple star system where the name is applied to the primary star, except Lang-Exster (α Tuc) where Lang and Exster can be applied to the two (thus far unresolved) components. Similar with “Phyllon Kissnou”, where the original Greek name referred to one visible dot in the sky and we apply the two names “Phyllon” to the main and “Kissinou” to the secondary component of the multiple (no individual numbers given in SIMBAD).